

NREL Industry Growth Forum Special Project Finance Session

Project Finance: Past, Present and Future

By

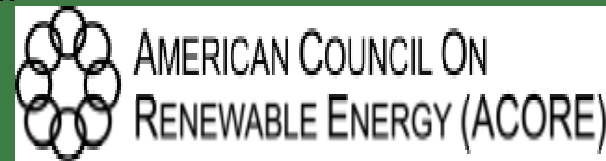
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Project Financing is the Formation of Capital using:

- **Equity**
- **Senior Debt**
- **Subordinated Debt**
- **Taxable & Tax Exempt Bonds**
- **Leases**
- **and other forms of financing**

Project Financing is Based on Cash Flow

- **The lenders/investors rely on the cash flows from the project for repayment and returns.**
- **Concept of the “Cash Waterfall”.**
- **The project’s cash flow supports the capital structure and must be capable of maintaining proper incentives for all parties.**

Project Finance Techniques were Developed for Capital Intensive Industries

- **Tunnels & Toll Roads**
- **Pulp and Fiberboard Facilities**
- **Sports Arenas**
- **Oil Production Facilities**
- **Power Projects**
- **Satellite and Space Facilities**
- **Resource Recovery Projects and**
- **Telecom Networks**

Why use Project Financing?

- **Allows smaller firms to raise larger amounts of capital for projects which produce steady revenue streams.**
- **Financial risk allocated in stages to various participants.**
- **Moves financial risk off-balance sheet.**
- **Allows JVs to share risk in special purpose vehicle (SPV).**
- **Allows companies to deploy technology in multiple facilities.**

The Beginning

North Sea Forties Oil Field Development

In the early 1970's BP developed the Forties Field in the North Sea through a project financing vehicle. A syndicate of 66 major banks provided \$94MM for an offshore platform.

- Largest private financing for the time.**

Growth Stage

1980 - 2002

Project finance employed extensively to finance IPP and clean fuel projects.

- **Conventional Fuels**
 - **Gas**
 - **Coal**
- **Clean Fuels**
 - **Ethanol**
- **Renewable Energy**
 - **Wind**
 - **Biomass**
 - **Geothermal**
 - **WTE**

Independent Power Plant (IPP) (Old Model)

- **Long-Term PPA**
 - **“Fixed” Price for Power**
 - **Capacity Payment**
 - **Energy Payment**
- **Long-Term Fuel Contract**
- **Hospitable Host Facility**
- **Thermal Contract**
- **Transmission Capacity Assured**
- **Operations & Maintenance Contract to Run Plant**
- **Construction Risk “Wrapped” in EPC Contracts**

Independent Power Plant (IPP) (Merchant Model)

- **No PPA - Sell power into open market**
 - **Limited or no capacity payments**
- **Long-Term fuel contracts - Present in early plants**
- **Spot fuel market for later plants**
- **No thermal host**
- **Construction risks moving on balance sheet**
- **Operations risks still exist**

**Prior to “Enron” Project Finance
was not a Dirty Word**

Key Elements of a Project Financing

- **Project Sponsor/Developer**
 - **Offtake Agreement: Source of Revenue**
- **Project Economics**
 - **Financial Structure**
- **Environmental Feasibility**
 - **Permits**
- **Technical Feasibility**
 - **Independent Engineer Report**

Key Elements of a Project Financing (continued)

- **Construction/Project Completion**
 - **EPC Contract**
- **Risk Mitigation**
 - **Technology**
 - **Construction**
- **Operation and Maintenance Contract**

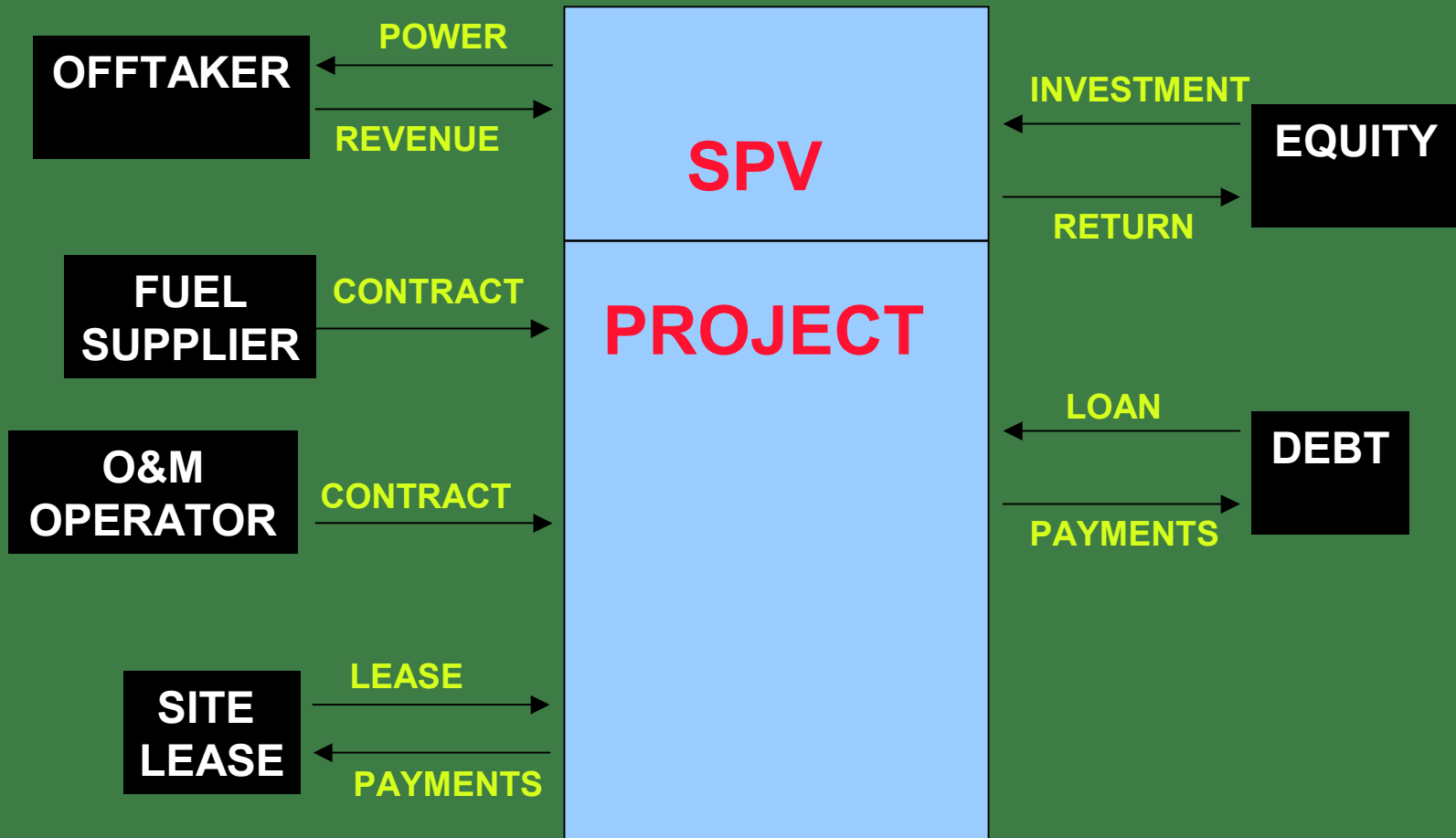
Key Elements of a Project Financing (continued)

- **Financial Package**
 - **Equity**
 - **Debt/Subdebt**
 - **Guarantees**
 - **Reserves**

The Phases of a Project



Basic Project Finance Structure



What is needed for a Project Finance Model Today?

- **Better understanding of Technology Risk**
- **The Role of VC Equity**
- **Better Understanding of Project Financing by VC Equity Investors**
- **Loan Guarantees**
- **Adoption of RPS in More States**

What is needed for Project Finance Model Today? (continued)

- **Compatibility of RPS with “Economic” PPA**
- **Blend of Public and Private Financing**
- **Get EPCs off the Bench**
- **Create “Project Teams” to Develop/Build Projects**
- **“Other”**

Factors Influencing Project Finance Markets Today

- **Overhang of Merchant Project Debt**
- **Depressed State of Electric Power Industry**
- **Where are the EPC Contractors?**
- **Insurance Industry Woes**
- **Will the technology work?**
- **RE is not Mainstream**

Questions?